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10/585,201	07/03/2006	Akimasa Yuuki	293181US2PCT	9973

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EXAMINER	
AMADIZ, RODNEY	
ART UNIT	**PAPER NUMBER**
2629	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/585,201	YUUKI ET AL.	
	Examiner	Art Unit	
	RODNEY AMADIZ	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 February 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/1/10*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 4-10 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu (USPGPUB 2005/0046768—hereinafter "Wu") in view of Harris et al. (U.S. Patent 5,115,228—hereinafter "Harris").

As to **Claim 1**, Wu teaches a liquid crystal display comprising:

a liquid crystal panel having two screens ***(See Fig. 5 and Pg. 1, ¶ 2)***;

a first front light ***(Fig. 5, 161)*** placed in a vicinity of one of the two screens of said liquid crystal panel;

a second front light placed in a vicinity of the other one of the two screens of said liquid crystal panel ***(Fig. 5, 162)***; and

a pixel driving circuit configured to alternately drive pixels ***(inherent to an image displaying LCD as shown in Figure 6)*** of said liquid crystal panel to alternately display a first image and a second image on the two screens of said liquid crystal panel, respectively, wherein said first front light lights up while the first image is displayed on said liquid crystal panel by said pixel driving circuit, and said second front light lights up while the second image is displayed on said liquid crystal panel by said pixel driving

circuit ***(Pgs. 1 and 2, ¶'s 19-20—note that the first and second image are alternately displayed when the device shown in Figure 6 is opened and closed)***.

Wu, however, fails to teach alternately displaying a first image and a second image on the two screens at an alternating frequency so that the first and second images appear to be displayed continuously. Examiner cites Harris to teach a display device capable of displaying a first image and a second image on the two screens at an alternating frequency so that the first and second images appear to be displayed continuously ***(Col. 2, lines 1-26 and Col. 3, line 45—Col. 4, line 68)***. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to utilize the concept taught by Harris, that is, displaying a first image and a second image on the two screens at an alternating frequency so that the first and second images appear to be displayed continuously, in the liquid crystal display device taught by Wu in order to allow users to simultaneously view images from both the front and back of a display ***(Harris—Col. 2, lines 1-26)***.

As to **Claim 2**, Wu, as modified by Harris, fails to teach that when displaying the first or second image on the liquid crystal panel, the pixel driving circuit applies image data about the image to be displayed on the liquid crystal panel to a plurality of gate lines of the liquid crystal panel in turn ***(inherent to an image displaying LCD as shown in Figure 6)***. Wu, however, fails to teach that the first or second front light lights up after the image data has been applied to all the gate lines. The Examiner takes Official Notice that lighting up a light source after the image data has been applied to the gate lines is old and well known in the art. At the time the invention was made, it

would have been obvious to a person of ordinary skill in the art to light up the first or second front light taught by Wu, as modified by Harris, after the image data has been applied to the gate lines so that the display device may properly display an image.

As to **Claim 4**, Wu, teaches that the liquid crystal panel includes a liquid crystal cell having the plurality of pixels ***(inherent to an image displaying LCD as shown in Figure 6)***. Wu, as modified by Harris, however, fails to teach a pair of transparent glass substrates which sandwich said liquid crystal cell, and a pair of polarizing plates placed outside said pair of transparent glass substrates. The Examiner takes Official Notice that it is old and well-known in the art for an LCD to utilize pair of transparent glass substrates which sandwich said liquid crystal cell, and a pair of polarizing plates placed outside said pair of transparent glass substrates. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to utilize a pair of transparent glass substrates and a pair of polarizing plates placed outside said pair of transparent glass substrates in the liquid crystal display taught by Wu, as modified by Harris, in order to form and keep the liquid crystal within the substrates and to properly reduce reflection.

As to **Claim 5**, Wu teaches a liquid crystal layer which includes the liquid crystal panel has a bend alignment ***(Pg. 1, ¶ 2—inherent to LC displays in order not to let light pass through)***.

As to **Claims 6 and 9**, Wu, as modified by Harris, fails to teach that a circular polarizing plate is placed outside a TFT substrate which includes the liquid crystal panel. The Examiner takes Official Notice that circular polarizing plates are old and

well-known in the art. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate a circular polarizing plate in the liquid crystal display device taught by Wu, as modified by Harris, in order to help reduce reflections.

As to **Claim 7**, Wu teaches a liquid crystal layer which constitutes the liquid crystal panel has a substantially-parallel alignment ***(Pg. 1, ¶ 2—inherent to LC displays in order to allow light to pass through)***.

As to **Claim 8**, Wu, as modified by Harris, fails to teach that a material of the liquid crystal layer has refractive index anisotropy which falls within a range of 0.1 to 0.2, and the liquid crystal layer has a birefringence value which falls within a range of 350 nm to 550 nm. The Examiner takes Official Notice that these ranges well-known in the liquid crystal display art. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to manufacture the liquid crystal layer taught by Wu, as modified by Harris, with the ranges as claimed in order to allow light to travel through the liquid crystal layer properly.

As to **Claim 10**, Wu teaches that a direction in which light is emitted out of each of the first and second front lights is inclined with respect to a direction perpendicular to the liquid crystal panel, and the direction in which the light is emitted out of the first front light differs from the direction in which the light is emitted out of the second front light ***(See Fig. 5 and note micro-rhombuses 122 and 142)***.

As to **Claim 13**, Wu teaches information equipment comprising:

a liquid crystal display ***(See Fig. 5 and Pg. 1, ¶ 2)*** including a first front light placed in a vicinity of one of two screens of a liquid crystal panel ***(Fig. 5, 161)***, a second front light placed in a vicinity of the other one of the two screens of said liquid crystal panel ***(Fig. 5, 162)***, and a pixel driving circuit configured to drive pixels of said liquid crystal panel to display an image on said liquid crystal panel ***(inherent to an image displaying LCD as shown in Figure 6)***;

an image controller ***(image-reversing unit)*** configured to output image data about the image which is to be displayed on said liquid crystal panel to said pixel driving circuit ***(Pgs. 1 and 2, ¶'s 19-20)***, wherein

said pixel driving circuit is configured to receive image data about a first image and image data about a second image from said image controller, and to alternately drive the pixels of said liquid crystal panel so that said two screens alternately display the first and second images on said first and second screens, respectively; and

said first front light ***(161)*** lights up while the first image is displayed on said first screen ***(screen closest to viewer B)***, and said second front light ***(162)*** lights up while the second image is displayed on said second screen ***(screen closest to viewer A and note Pgs. 1 and 2, ¶'s 19-20—note that the first and second image are alternately displayed when the device shown in Figure 6 is opened and closed)***.

Wu, however, fails to teach alternately displaying the first image and second image on said first and second screens, respectively, at an alternating frequency so that the first and second images appear to be displayed continuously. Examiner cites Harris to teach a display device capable of displaying a first image and a second image on the

first and second screens, respectively, at an alternating frequency so that the first and second images appear to be displayed continuously ***(Col. 2, lines 1-26 and Col. 3, line 45—Col. 4, line 68)***. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to utilize the concept taught by Harris, that is, displaying a first image and a second image on the first and second screens, respectively, at an alternating frequency so that the first and second images appear to be displayed continuously, in the liquid crystal display device taught by Wu in order to allow users to simultaneously view images from both the front and back of a display ***(Harris—Col. 2, lines 1-26)***.

As to **Claims 14 and 15**, Wu, as modified by Harris, teaches that information in the first image displayed on the first screen is different from information in the second image displayed on the second screen ***(Harris—Col. 1, lines 60-68, Col. 2, lines 1-26 and Col. 3, line 45—Col. 4, line 68)***.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu and Harris in view of Eichenlaub (U.S. Patent 5,428,366—hereinafter "Eichenlaub").

As to **Claim 3**, Wu teaches that the pixel driving circuit applies image data about the image to be displayed on the liquid crystal panel to a plurality of gate lines of the liquid crystal panel in turn ***(inherent to an image displaying LCD as shown in Figure 6)***. Wu, as modified by Harris, however, fails to teach that each of the first and second front lights includes a plurality of light sources which respectively correspond to the plurality of gate lines to light up in order that the image data is applied to the plurality of

gate lines. The Examiner cites Eichenlaub to teach a display device having a plurality of light sources which respectively correspond to the plurality of gate lines to light up in order that the image data is applied to the plurality of gate lines ***(See Figs. 4 and 5a-5c and Col. 1, lines 1-47)***. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the teachings of Eichenlaub, that is, providing a plurality of light sources which respectively correspond to a plurality of gate lines to light up in order that the image data is applied to the plurality of gate lines in the liquid crystal display taught by Wu, as modified by Harris, in order to properly display an image on the display device

4. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu and Harris in view of Taira et al. (U.S. Patent 6,867,828—hereinafter "Taira").

As to **Claim 11**, Wu teaches that the direction in which the light is emitted out of each of the first and second front lights is inclined toward an upward or downward direction with respect to the direction perpendicular to the liquid crystal panel, and the direction in which the light is emitted out of the first front light differs from the direction in which the light is emitted out of the second front light ***(See Fig. 5 and note micro-rhombuses 122 and 142)***. Wu, as modified by Harris, fails to teach that the direction in which the light is emitted out of each of the first and second front lights is inclined toward an upward or downward direction by an angle of 5 to 10 degrees with respect to the direction perpendicular to the liquid crystal panel, and the direction in which the light is emitted out of the first front light differs from the direction in which the light is emitted

out of the second front light by an angle of 10 to 20 degrees. (Emphasis is added to distinguish the limitations not taught by Wu). The Examiner cites Taira to teach a light guide emitting light toward an upward direction by an angle of 5 to 10 degrees with respect to the direction perpendicular to the liquid crystal panel ***(See Figs. 3-6 and Col. 2, lines 9-15)***. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the teachings of Taira, that is emitting light toward an upward direction by an angle of 5 to 10 degrees with respect to the direction perpendicular to the liquid crystal panel in the liquid crystal display taught by Wu, as modified by Harris, in order to provide a visually enhanced image. As a result, the combination of Wu, Harris and Taira teaches that direction in which the light is emitted out of the first front light differs from the direction in which the light is emitted out of the second front light by an angle of 10 to 20 degrees.

As to **Claim 12**, Wu teaches that the direction in which the light is emitted out of each of the first and second front lights is inclined toward a direction opposite to a direction of a light source of each of the first and second front lights with respect to the direction perpendicular to the liquid crystal panel, and the direction in which the light is emitted out of the first front light differs from the direction in which light is emitted out of the second front light ***(See Fig. 5 and note micro-rhombuses 122 and 142)***. Wu, as modified by Harris, fails to teach that the direction in which the light is emitted out of each of the first and second front lights is inclined toward a direction opposite to a direction of a light source of each of the first and second front lights by an angle of 5 to 10 degrees with respect to the direction perpendicular to the liquid crystal panel, and the

direction in which the light is emitted out of the first front light differs from the direction in which light is emitted out of the second front light by an angle of 10 to 20 degrees. The Examiner cites Taira to teach a light guide emitting light toward an upward direction opposite to a direction of a light source of each of the first and second front lights by an angle of 5 to 10 degrees with respect to the direction perpendicular to the liquid crystal panel ***(See Figs. 3-6 and Col. 2, lines 9-15)***. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the teachings of Taira, that is, emitting light toward an upward direction opposite to a direction of a light source by an angle of 5 to 10 degrees with respect to the direction perpendicular to the liquid crystal panel in the liquid crystal display taught by Wu, as modified by Harris, in order to provide a visually enhanced image. As a result, the combination of Wu, Harris and Taira teaches that direction in which the light is emitted out of the first front light differs from the direction in which the light is emitted out of the second front light by an angle of 10 to 20 degrees.

Response to Arguments

5. Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Inquiries

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RODNEY AMADIZ whose telephone number is (571)272-7762. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. A./
Examiner, Art Unit 2629
05/12/10

/Sumati Lefkowitz/
Supervisory Patent Examiner, Art Unit 2629